ENVIRONMENTAL Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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WMD-SW-18 1998

Recycling Steel Cans

Steel Cans in Solid Waste

Weight and Volume -- About 2.9 million tons of steel cans were used in the U.S. in 1995 - about 35.8 billion cans, or about 140 cans per person. Steel cans account for about 1.5 percent of municipal solid waste (MSW) by weight, and a slightly higher proportion (about 1.8 percent) of landfilled MSW volume. Over 94 percent of steel cans are used for food products. Most of the remaining are used for other consumer products (paints, aerosol products, etc.). A very small proportion are used for beer and soft drinks. Individual consumers are the source of most of the steel cans found in MSW. Less than 15 percent of commercial and industrial wastes are comprised of steel cans.

The term "tin can" is short for the more accurate "tinned can," which refers to a very thin layer of tin applied to protect food and beverage flavors and to inhibit rusting. Only about six pounds of tin plating are used per ton of steel. An increasing proportion of steel cans are being produced with new technologies that eliminate the need for tinning.

Disposal -- Steel cans degrade very slowly (by rusting) in the environment. Steel cans are noncombustible and pass through a waste-to-energy incinerator in bottom ash. Some waste-to-energy facilities use magnets to separate steel cans (and other ferrous metals) from incoming wastes or from ash prior to disposal. However, New Hampshire's two waste-to-energy incinerators do not separate metals.

Steel Can Recycling

Collection, Processing, and Storage -- Because they can be magnetically separated from other MSW constituents, steel cans are among the easiest commodities to recycle. Nationally, about 54.4 percent of all steel cans are currently recycled. Many recycling programs, both dropoff and curbside, collect "comingled cans" (mixed steel and aluminum containers) or, "comingled containers" (mixed steel, aluminum, and plastic containers), and use a simple magnetic conveyor to separate them during processing. Steel can recycling processes are also very forgiving of contaminants -- for example, labels and food residue burn off during steelmaking, small quantities of aluminum (e.g., from steel/aluminum "bi-metal" cans) or non-container steel are readily accepted by steel furnaces, and the quantity of tin in steel containers is too small to cause any problems during steelmaking.

Processing cans for markets is similarly easy. Some steel markets will accept mixed steel and aluminum cans, and most will accept steel cans either intact, flattened, or baled. Arrangements vary with individual processors and the processing capabilities of specific municipalities. In

addition to simplifying recycling steps for residents, collecting a mixture of steel and aluminum cans tends to discourage the theft of aluminum cans -- a problem that has plagued many curbside and dropoff recycling programs. Potential concerns for local recycling programs are the handling of aerosol containers (because they may still contain compressed gases) and paint cans (a concern if any liquid residues remain). Therefore, paint cans are typically recycled with scrap metal and not with steel food containers.

Manufacturing -- Steel scrap has been used in steelmaking for as long as the steel industry has existed. Steel cans can be melted directly in a steel furnace, or detinned (to recover higher value tin for resale to tin-using industries) prior to steelmaking. Basic-oxygen furnaces (the majority of U.S. steelmaking capacity) can use up to 20-30 percent scrap steel inputs; electric arc furnaces (a newer steelmaking technology) can operate with 100 percent scrap. Iron and steel foundries can also use steel cans as raw material. There are few limitations on the range of steel products in which recycled steel cans can be used as inputs.

Markets for Recycled Steel Cans -- Most New Hampshire municipalities market their steel cans to an established network of dealers in this and adjacent states. These dealers consolidate shipments from many municipalities (plus commercial/industrial sources) into loads that they resell in regional markets. End-use markets and prices for steel cans are relatively stable. Prices for steel cans (and other ferrous scrap metal) are unspectacular and subject to fluctuations in national and international commodity markets. However, for most communities, prices for tin cans and other steel scrap are more than sufficient to justify their relatively low collection and processing costs.

For More Information

Additional information on recycling steel cans and other materials in New Hampshire is available from:

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